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SUR LA BREVETABILITÉ (CHAPITRE I OU CHAPITRE II)  
DU TRAITE DE COOPERATION EN MATIERE DE BREVETS)

(règles 44bis.3.c) et 72.2 du PCT)

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Date d'expédition (jour/mois/année)  
22 juin 2006 (22.06.2006)

Référence du dossier du déposant ou du mandataire  
B14306.3 HM

**NOTIFICATION IMPORTANTE**

Demande internationale n°  
PCT/FR2004/050473

Date du dépôt international (jour/mois/année)  
30 septembre 2004 (30.09.2004)

Déposant

COMMISSARIAT A L'ENERGIE ATOMIQUE etc

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**PATENT COOPERATION TREATY**  
**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

**(PCT Article 36 and Rule 70)**

<b>Applicant's or agent's file reference</b> <b>B14306.3 HM</b>		<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
<b>International application No.</b> <b>PCT/FR2004/050473</b>	<b>International filing date (day/month/year)</b> <b>30.09.2004</b>	<b>Priority date (day/month/year)</b> <b>30.09.2003</b>	
<b>International Patent Classification (IPC) or national classification and IPC</b> <b>G06F15/78, G06F15/80</b>			
<b>Applicant</b> <b>COMMISSARIAT A L'ENERGIE ATOMIQUE</b>			

- 1 This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2 This REPORT consists of a total of 7 sheets, including this cover sheet.

3 This report is also accompanied by ANNEXES, comprising:

a  (*sent to the applicant and to the International Bureau*) a total of \_\_\_\_\_ sheets, as follows:

sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b  (*sent to the International Bureau only*) a total of (indicate type and number of electronic carrier(s))  
\_\_\_\_\_ containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4 This report contains indications relating to the following items:

Box No. I Basis of the report

Box No. II Priority

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

Box No. IV Lack of unity of invention

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Box No. VI Certain documents cited

Box No. VII Certain defects in the international application

Box No. VIII Certain observations on the international application

<b>Date of submission of the demand</b>	<b>Date of completion of this report</b>
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FR2004/050473

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- This report is based on translations from the original language into the following language \_\_\_\_\_ which is the language of a translation furnished for the purposes of:
- international search (Rule 12.3 and 23.1(b))  
 publication of the international application (Rule 12.4)  
 international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):
- the international application as originally filed/furnished  
 the description:  
 pages 1-37 as originally filed/furnished  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- the claims:  
 nos. 1-18 as originally filed/furnished  
 nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19  
 nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- the drawings:  
 sheets 1/11-11/11 as originally filed/furnished  
 sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3.  The amendments have resulted in the cancellation of:
- the description, pages \_\_\_\_\_  
 the claims, nos. \_\_\_\_\_  
 the drawings, sheets/figs \_\_\_\_\_  
 the sequence listing (specify): \_\_\_\_\_  
 any table(s) related to sequence listing (specify): \_\_\_\_\_
4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- the description, pages \_\_\_\_\_  
 the claims, nos. \_\_\_\_\_  
 the drawings, sheets/figs \_\_\_\_\_  
 the sequence listing (specify): \_\_\_\_\_  
 any table(s) related to sequence listing (specify): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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**Box No. V** **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims	4-18	YES
	Claims	1-3	NO
Inventive step (IS)	Claims		YES
	Claims	1-18	NO
Industrial applicability (IA)	Claims	1-18	YES
	Claims		NO

**2. Citations and explanations (Rule 70.7)****1. Reference is made to the following documents:**

D1: US 5 892 962;

D2: FLEX 8000 Programmable Logic Device Family Data Sheet;

D3: A dynamically Reconfigurable Logic Engine with a Multi-Context/Multi Mode Unified Cell Architecture.

2. The present application does not fulfil the requirements set forth in PCT Article 33(1) because the subject matter of claims 1-3 does not comply with the requirement of novelty defined in PCT Article 33(2).

2.1 Document D1 describes (the references between parentheses apply to said document):

- a component that has a dynamically reconfigurable architecture for data processing (figure 1) and comprises a data processing unit TD (first line in the FPGA array) and a general

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Box No. V      **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

controller CG (106, 108, 110 and 112 and host computer) for controlling said unit TD, which component is characterised in that:

- said unit TD includes a plurality of reconfigurable basic data processing units BE (FPGA), each including two inputs E1 and E2 (figure 2, DATA FROM I/O CONTROLLER 106 and WEST CONNECTION) for receiving data to be processed, and an output S (figure 2, EAST CONNECTION and SOUTH CONNECTION) for transmitting the processed data,
- wherein a shared input data bus transmits data to be processed to said input E1 in each of said units BE (global bus 114, column 2, lines 56 to 59) as well as to said controller CG (figure 1, 114), and
- for each unit BE, an output data bus connected to the output S thereof transmits processed data outside said component (to the next line in the FPGA array via the SOUTH CONNECTION then outside said component via connection 114 in element 104 connected to said SOUTH CONNECTION) and to said input E2 in one other unit BE (via the EAST CONNECTION)
- and wherein said controller CG initialises the configuration of said units BE, controls the dynamic reconfiguration thereof (column 6, lines 35 to 44), controls the data streams output by each unit BE in such a way as to transmit data either outside said component or to said input E2 in another unit BE

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability:  
citations and explanations supporting such statement

(column 2, lines 55 to 60) and controls the data streams input into each unit BE (column 3, lines 50 to 56).

It follows that the subject matter of claim 1 is not novel.

- 2.2 Document D1 also discloses that the component includes a controller suitable for controlling the transmission of data received from outside on the shared data bus (column 3, line 64 to column 4, line 6) [...] as well as for initialising the configuration of units BE (column 5, lines 34 to 37). As a result, the subject matter of claims 2 and 3 is not novel.
3. The present application does not fulfil the requirements set forth in PCT Article 33(1) because the subject matter of claims 4-18 does not involve an inventive step as defined in PCT Article 33(3).
- 3.1 Document D1 further discloses that:
  - each unit BE (FPGA) in said unit TD (line of FPGAs) includes a plurality of data processing blocks (columns of reconfigurable logic units in said FPGA, document D2, figure 1, columns of LABs) and corresponds to a line in a crossbar network of blocks UT in said unit TD, said blocks UT in each pair of consecutive blocks in each unit BE is capable of exchanging data via

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Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

an associated configurable bidirectional communication unit BCOM (interconnection network between columns in an FPGA, D2, *ibid.*);

- in each unit BE, the input block UT, which corresponds to the first block UT on the line corresponding to said unit, receives input data that was received at said inputs E1 and E2 of said unit (input/output units in an FPGA, see document D2, IOEs), and the output block UT, which corresponds to the last block UT on the line corresponding to said unit, transmits processed output data to said output S in said unit; and
- for each unit BE (FPGA), said controller CG receives and stores instructions from outside said component with regard to data processing by each of said blocks UT in said unit (column 3, lines 37 to 44), initialises the configuration of each block UT and each unit BCOM in said unit BE and controls the dynamic reconfiguration thereof (column 6, lines 35 to 44).

The circuit in claim 4 differs from the one described in document D1 in that the configurable bidirectional communication unit BCOM for bidirectional communication between two blocks is a dedicated unit.

This difference corresponds to modifications that would be routine practice to a person skilled in the art and the resulting advantages are easily

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Box No. V	<b>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement</b>
	foreseeable.

It follows that the subject matter of claim 4 does not appear to involve an inventive step.

4. Dependent claims 5 to 18 relate to implementation features of a table of reconfigurable elements. Said features are fully within the abilities of a person skilled in the art (see document D2, table 1, figures 1 and 2, pages 361 to 363; and document D3). As a result, these claims do not appear to contain any features which, in combination with the features of any one of the claims to which they refer, might define subject matter that fulfils the PCT requirement of inventive step.